

# AAAS Bulletin

American Association for the Advancement of Science

JANUARY 1961

## Report from the President

► From time to time it is appropriate for the members of such a venerable organization as the AAAS to reconsider their organizational goals. On several occasions since its founding in 1848, the Association has done that, but the founders stated their purposes so well that there has been little inclination to change them. The Association has grown from 461 members to a current 62,050 and its enterprises have multiplied, but the goals of 1848 are still the goals of 1960.

What is our program? It is quite clearly stated in our constitution. In order that no reader need have a moment's worry about where to find a copy of the AAAS constitution, here is Article I, Section 2:

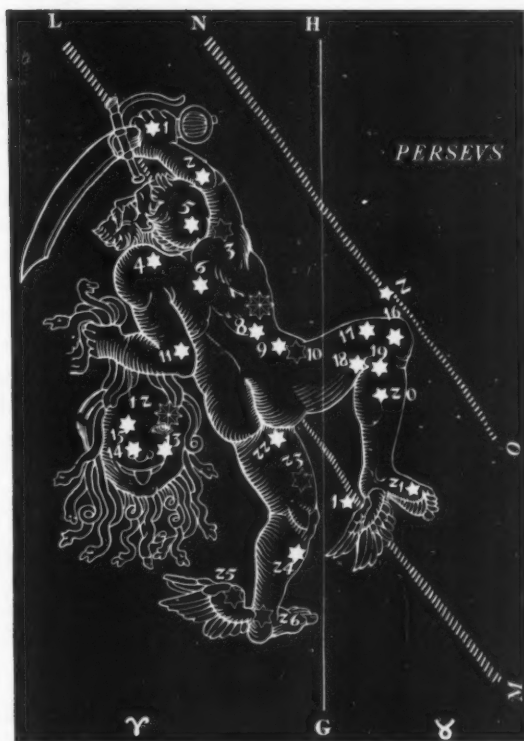
*The objects of the American Association for the Advancement of Science are to further the work of scientists, to facilitate cooperation among them, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.*

Both the Council and the Board of Directors have been more or less continuously concerned with the question of how well the Association has been actually carry-

ing out its objectives. Several years ago the Council, with particular interest in "the effectiveness of science in the promotion of human welfare," voted to establish an ad hoc committee on the social aspects of science. This committee studied its problem industriously and sent to the Board and Council several vigorous reports. Simultaneously the Board, with particular interest in increasing "public understanding and appreciation of the importance and promise of the methods of science in human progress," began to seek means to make the AAAS a more effective contributor to the public's understanding of the revolutionary changes going on in science and what those changes mean for society.

These two stirrings of activity came together and received organizational blessing when, at the suggestion of Paul Klopsteg, the Board recommended establishment of three major committees, each to devote itself to one of the three major AAAS goals. The Council heartily approved the Board's recommendation and the three committees were appointed. They are:

- The Committee on Cooperation among Scientists
- The Committee on Science in the Promotion of Human Welfare
- The Committee on Public Understanding of Science



The three committees parallel the three major constitutional objectives and are responsible for advising the Board and the Council on ways in which we can work more effectively toward these goals.

Over the decades, the Association has paid more attention to cooperation among scientists than it has to its other goals. Our annual meeting is one of the few opportunities in the U. S. for scientists from all disciplines to meet each other, exchange ideas, and consider the general standards and ideals of scientific effort. *Science*, one of the world's major scientific publications, is primarily devoted to keeping scientists informed about major developments in the specialized areas of science and about events and trends that affect science generally. Meetings, such as the Symposium on Basic Research in 1959 and the First International Oceanographic Congress, also in 1959, are other examples of the work of the AAAS in this field.

Much more remains to be done, and the Committee on Cooperation among Scientists is seeking additional ways of meeting this objective. The Committee has made some useful editorial suggestions for *Science*, but has not yet prepared a general report. Committee members are:

John R. Bowman, Northwestern University, chairman; Burton W. Adkinson, National Science Foundation; Richard T. Arnold, Mead Johnson and Company; R. E. Gibson, the Johns Hopkins University; Thomas Parran, Avalon Foundation; Bentley Glass, the Johns Hopkins University, ex officio representative of the AAAS Board of Directors.

The very active Committee on Science in the Promotion of Human Welfare is a direct descendent of the older ad hoc committee on the social aspects of science. It is interesting to note that the ad hoc committee's unpublished report on radiation dangers anticipated by several years general conclusions now being reached on the matter.

In its recent report, the Committee on Science in the Promotion of Human Welfare proposed some means by which the Association might contribute to better understanding of how science is changing the shape of society and of the risks inherent in unwise applications of scientific principles (*Science*, 132, 8 July 1960). The report was widely cited in newspaper articles and editorials, with many expressions of approval for the plans outlined. Members of this committee are:

Barry Commoner, Washington University, chairman; Robert B. Brode, University of California, Berkeley; Harrison Brown, California Institute of Technology; T. C. Byerly, Agricultural Research Service; Laurence K. Frank, Belmont,

Massachusetts; H. Jack Geiger, Harvard Medical School; Frank W. Notestein, New York Population Council; Margaret Mead, American Museum of Natural History, ex officio representative of the AAAS Board of Directors.

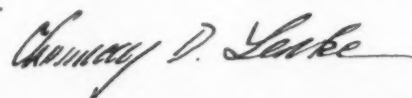
The problems involved in promoting public understanding of science are many and complex. We are slowly developing in the U. S. an excellent group of professional science writers who are broadly trained and who have a sharp appreciation of what constitutes significant scientific advance. Most of these science writers are spot news reporters. Within the limits of time and space imposed, the professional science writers do a magnificent job, and newspaper and news service editors are increasingly interested in making sure that science news is handled by men who have the background for evaluating it. But occasionally it is not, and such spot news of research sometimes leads to misunderstandings with the scientists who provided the information. Perhaps in these cases we do not take all the responsibility we might. Where evaluation is difficult, we must try to supply it, and not leave this task, hard as it sometimes is for one with years of work in a research specialty, to a reporter without this background.

Perhaps even more influential than spot news are the broad reviews of current advances in major scientific fields, with some integration of the various lines of work and recognition of new directions as these appear. And most important of all is the problem of getting across to people generally what the standards and problems and ideals of scientific effort really are. In all three of these areas, and through all public media, the Committee on Public Understanding of Science is trying to make the AAAS more effective. Members of the Committee are:

Warren Weaver, Alfred P. Sloan Foundation, chairman; Willard Bascom, National Academy of Sciences; Allen T. Bonnell, Drexel Institute of Technology; Victor Cohn, *Minneapolis Star and Tribune*; Paul Klopsteg, Glenview, Illinois, ex officio member of the AAAS Board of Directors.

The committee has no intention of trying to persuade the AAAS to become a major publisher of popular science information or to run a news bureau, but hopes the Association can become an aid and counsel to the public media that report scientific progress. You will find a report of the new staff member appointed to direct this work elsewhere in this issue.

Three major goals: cooperation among scientists, promotion of human welfare, and public understanding of science. These have long been the goals of the AAAS and special programs and activities have been devoted to the achievement of each one. The current problem is to do better.



PRESIDENT OF THE AAAS FOR 1960

# Traveling Books

► What makes a scientist? When four-year-old Albert Einstein saw the quivering needle of a compass placed in his hand, he "trembled and grew cold." For Darwin, some think it was the woods animals his awesome father pointed out as he rode along in the country doctor's chaise. For Pasteur, once interested only in art, was it the lives of great scientists, read in the Ecole Normale library?

Scientists themselves think books are a major key. Einstein, for example, recalled that a popular set of illustrated books on natural science, which he read at 14, aroused a deep veneration of nature that influenced the direction of his life.

## Two Million Readers

Several years before the Soviet success at rocketry persuaded a large number of nonscientists that science may require at least as much attention as football in the U. S. high school curriculum, a group of AAAS members decided that something should be done to help teenagers find out that science is not the dull affair it often seems in school.

Since then some two million young readers have opened the sort of book that may be a doorway to lifework in science. They have been reading the 360 titles of the Traveling High School Science Library and the Traveling Elementary Science Library, selected and shipped to some 4,000 schools by the AAAS. The libraries have traveled for six years on \$1,498,000 worth of funding from the National Science Foundation.

## Science Shortage

The Traveling Science Libraries were launched from a lunch table conversation. At the table: Samuel Brownell, then U. S. Commissioner of Education; Ralph Rackly, then Deputy Commissioner of Education; Harry Kelly and Bowen Dees of the National Science Foundation; Dael Wolfe of AAAS.

These men were concerned with the extent to which school libraries lack the money and inclination to buy good science books. So why not collect the really fascinating books and send them around on loans to libraries?

An initial grant of \$23,250 from the National Science Foundation started work on a book list. Dr. Hilary Deason an ichthyologist who finds children even more interesting than fishes, spent some weeks browsing through the best bait offered by the trade book publishers. He made a first book list with the help of Miss Margaret Scoggin, coordinator of Young Adult Services of the New York Public Library System, and sent it to the 421 members of the AAAS Council. Council members took time off from affairs ranging from satellites to chromatins to vote on the list and suggest additions.

## Dinosaurs and Giants

Teenagers themselves teamed with the scientists to make the final book choices, working through the summer at AAAS headquarters. Turning down anything that seemed to them "watered down stuff," the high school team added some books that would be stiff reading for a literate adult (samples: Einstein & Infeld, *The Evolution of Physics* and Munn, *The Evolution and Growth of Human Behavior*.)

What do most young people want to read about? Aviation and exploration, of course—the "most popular subjects" in the Traveling High School Science Library. But there were some surprises. Paleontology was No. 1 in interest for grade schoolers. "Dinosaurs appear to be giants and ogres for modern kids," says Dr. Deason.

## Dance of the Rattlesnake

Charles Coombs, who writes about skyrocketing and space travel, got the biggest mass vote. His *Survival in the Sky* was last year read by more high school readers than any other book, and his *Skyrocketing into the Unknown* was the most popular single book on the elementary list.

Jules Verne retained an appeal he has had since 1870, with *20,000 Leagues Under the Sea* showing as No. 5 in high school circulation. No. 2 was Thor Heyerdahl's *Kon-Tiki*, followed by Clifford Pope's *The Reptile World* (full of arresting photos of the war dance of the red diamond rattlesnake and the approach of the night mating gecko, etc.) and by E. H. G. Lutz' *Men with Golden Hands*, an account of surgical miracles of the last century.

While travel in space and over and under the sea were the major lures for

teenage readers, no book in the collection failed to attract substantial circulation. Judgments of the original teenage jury were confirmed: the academically talented youngsters who may be tomorrow's scientists were eager to read about the great discoveries of science in the words of the discoverers themselves.

The circulation record also supported the assumption on which the traveling libraries were organized. Science books in permanent school library collections

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The American Association for the Advancement of Science, founded in 1848, offers membership both to professional scientists in all fields and to other men and women who have a general interest in science and who recognize its relation to human welfare.

Annual membership dues are \$8.50. Each member receives the *Bulletin and Science*, the scientific newsweekly established by Thomas A. Edison in 1880. *Science* includes reports of original research across the spectrum of the physical and biological sciences as well as news of scientists and their work.

Chauncey D. Leake, Past President and  
Chairman of the Board

Thomas Park, 1961 President

Dael Wolfe, Executive Officer



are both scarce and badly out of step with students' interests. Biggest proportions: Paleontology was No. 3 when ranked by interest of both high school and grade school readers, but only No. 18 in rank in permanent book collections of the participating libraries. Botany was No. 4 in book holdings, but No. 19 in reader interest.

School librarians, usually educated in the humanities, are apt to underestimate interest in science and to lack know-how in choosing science books. Scientists' choice is represented by a list of 900 titles, *The AAAS Science Book List*, an acquisition guide for high school libraries. The *List* has been adopted by departments of education in a number of states as an official guide for book purchase under the provisions of the National Defense Education Act of 1958. A similar buying guide for elementary school libraries, *The Science Book List for Children*, prepared with the help of the American Association of School Librarians, has just been published by the AAAS.

According to AAAS figures, considerable buying is in order. Dr. Deason recommends that at least 20 per cent of school library collections be in science books; a survey of 1,000 representative high school libraries showed an average of only 5.2 per cent science titles in their collections.

Dr. Deason and others particularly interested in making scientists or even readers out of young people are now turning to a next step. Trade books, they say, are not used as much as they ought to be in science teaching. How to get the books out of the libraries and into teacher's programs is evident in a few pace-setting schools, and the AAAS group hopes they can help other schools follow. Biggest shortage of science books, according to Dr. Deason: interesting books about mathematics.

No one is sure how many scientists the traveling books have made, but we do know they have boomed the science book market. Publishers and book jobbers have reported substantial sales increases for the titles that traveled.

## Life Span in Our Species

► With the White House Conference on Aging beginning in Washington on January 9, there has been special interest in a new AAAS publication. When *Aging: Some Social and Biological Aspects* was published in mid-November, 780 advance orders awaited it. The volume makes available papers given by physiologists, geneticists, physicians, economists and sociologists at a symposium at the 1959 Annual Meeting. The reader will get a good look at the current status of research in the various biological aspects of aging as well as at the changing social pattern now being shaped by the increased share of the over-65 age group in our total population.

### Less Tiresome and Haphazard

Like many of the contributors, Dr. Joseph T. Freeman of the Graduate School of Medicine of the University of Pennsylvania emphasized the linkage of length of life-span to species and to genetic determination. "The initiation of a species is part of its aging, its diseases and eventual demise. . . ."

"The most important fact of human biology is the greater likelihood of the

approximation of man's average life survival to his species' capabilities of  $110 \pm 10$  years. The difference between average length of life (which has now passed the 70-year mark for combined male-female life expectancy at birth) and man's basic biological life span represents the individual and ecological flaws in such realization. Close to this concept of actual and possible survival for most people (which, as George Bernard Shaw indicated, might become quite tiresome) there is the need to make this living span healthier, or at least less haphazard. Nothing but misanthropy can result from efforts to preserve life to its fullest inborn extent without equal effort to reduce dependency and disability."

Dr. Freeman's proposal for using the existing social security machinery to provide prepayment of medical costs after retirement is published as an appendix to the volume.

According to Dr. Geoffrey H. Bourne, Department of Anatomy, Emory University, Atlanta, Georgia, "It is probable that nobody has actually ever died entirely of senility. As a person becomes

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## To Members of the AAAS:

This is the first issue of a new series of the *AAAS Bulletin*. The Board of Directors has decided that we should have a membership bulletin, an occasional newsletter through which members can easily keep up to date on what the AAAS is doing. All members receive *Science* every week and know that it is one of the principal benefits of AAAS membership. They know about the annual and regional meetings, and they all receive announcements of the symposia published by the AAAS. But there has been an increased feeling that some more direct means of linking the membership is necessary.

This is not the first time the AAAS has published a newsletter for members. The deepened awareness of purpose that came with the war years launched the first issue of the *AAAS Bulletin* in 1942 (which succumbed only to the acute paper shortage of 1946). All of us felt a new eagerness to attempt what the late Forest R. Moulton, then the Association's permanent secretary, described as "the arduous and joyful task of undertaking to provide a new moral leadership for mankind at the most fluid and favorable period in the whole history of the world."

It may be time to ask whether, in 15 years, we have made much progress in the enterprise so eloquently described by Dr. Moulton. Some of the means recently devised for channeling the resources of our membership to the many social tasks where they are needed are summarized in this issue by our president, Dr. Chauncey Leake. No one is comforted by the notion that the committee machinery so far established is more than a step in the direction in which we all want to go. It is one thing to endorse general objectives and appoint committees, and quite another to find tangible and useful means for making small daily (or even yearly) progress. But the hope is that by consistent reporting of what progress is made by these committees and other present instruments of the Association we can elicit new interest and effort from the membership that will enlarge our capacity for effective action.

The *AAAS Bulletin* will in part replace the "Association Affairs" pages of *Science*. But material that merits permanent filing—Council Proceedings, the annual financial report, etc.—will, as before, be published in *Science*. The *Bulletin* can be less formal than *Science* and can present current news of the Association by itself instead of as an appendage to the weightier matters of *Science*. In short, the *Bulletin* will be a letter to the members.

So here it is, yours to read or throw away. You can easily skip anything that looks uninteresting, but you will not miss inadvertently some bit of AAAS news that interests you. Issues will come to you quarterly. They will have the primary purpose of helping AAAS members keep informed about what the Association is doing, but we hope they will stimulate a flow-back of ideas on what else we ought to be doing.

As the Publications Committee and Board of Directors discussed the merits of re-establishing the *AAAS Bulletin*, Chauncey Leake, AAAS President, was the principal and most persuasive advocate. It is fitting to have the first issue feature his discussion of the goals of the AAAS.

DAEL WOLFLE  
Executive Officer

old he becomes more susceptible to disease processes, and almost invariably it is the disease which effects the final coup d'état."

While pointing out that it is difficult to tell whether detectable structural changes in body tissue are the result of aging or of disease, Dr. Bourne reported that degenerative changes can be found in the cells of many organs. These seem to be particularly apparent in cellular centers of energy production: the mitochondria may become elongated or granulated; the Golgi apparatus may disintegrate into granules.

"The critical problem in studying the cause of aging is to try to find out whether the individual cells and organs have some intrinsic aging process themselves or whether the cells of one tissue cause those of another to age by cutting off some important chemical compound that they produce."

Dr. Bourne said in examination of aged pituitary, adrenal, thyroid and sex glands he had not found any structural evidence that cellular aging is due to degeneration of these glands of internal secretion. On the other hand, the thymus gland, whose role in the body is unknown, "is largely replaced by fat" in old persons.

*Aging* is No. 65 in the AAAS Symposium series, which began in 1934 with a discussion of *The Protection by Patents of Scientific Discoveries*, and have since ranged widely across the advancing front of science.

## Man for the Job

► Edward G. Sherburne, Jr., who will join the AAAS staff in March, has from the beginning of his career been interested in the question of how to keep public understanding in step with the rapid advance of scientific knowledge. He leaves the University of California,

## New Officers

As we go to press, word comes from New York that the AAAS Council has named Paul M. Gross, Professor of Chemistry, Duke University, as President Elect. Alan Waterman, Director, National Science Foundation and Don Price, Dean of the Littauer School of Public Administration, Harvard University were re-elected to the Board of Directors. Henry Eyring, Dean of the Graduate School, University of Utah, was elected as a new member of the Board of Directors.

where he has been Statewide Coordinator of Educational Television, to direct the Association's work in the major field of increasing general understanding of science (see Dr. Leake's report above).

Mr. Sherburne has had this to say about the job ahead: "The basic ingredient which must underlie a sound program of public education is respect for the knowledge to be shared, and the correlates of respect for the specialist sharing it, and for the recipients. While this may seem almost a truism, when matched against practice, it is often the basic cause of failure in many efforts."

Mr. Sherburne participated in some of the pioneer studies of the effectiveness of television for instruction at the Naval Special Devices Center. He helped launch two of the early educational television stations, KETC in St. Louis and WGBH-TV in Boston. As Program Associate for the National Educational Television and Radio Center, he worked on a number of outstanding series, especially in science.

A mathematician by training and an ornithologist by avocation, Mr. Sherburne is a graduate of Massachusetts Institute of Technology.

## On the Cover

► Star maps are among the oldest graphic scientific documents, and were the first whose distribution was multiplied by that new invention of the 15th century: the printing press. Thus these accurate plottings of the stars visible to the naked eye stand at the beginning of the great stirring of men's minds that set off the revolution in astronomy and marked the advent of modern science. Printed star maps were in relatively wide use long before Copernicus, on his deathbed, saw page proofs of his heliocentric diagram in 1543.

The star map on the cover was printed in 1569 by an enterprising member of the University of Cologne faculty, who used it in an edition of Aratos' *Thainomena* which he sent around to his colleagues as an advertisement for his printing press.

AAAS Fellow Simone Daro Gossner, an astronomer at the U. S. Naval Observatory, recently discovered that this early piece of academic enterprise (part of her collection of early astronomical works) owes its grace to the great German master, Albrecht Durer, whose magnificent but little known woodcuts of the constellations were pirated by the Cologne printer.

Perseus will be nearly overhead in the January sky at 9 p.m. Look above the hilt of Perseus' sword for the famous double cluster of hot young stars—nucleus of the expanding association that has helped astronomers decide stars are still being born in our Milky Way. The double cluster shows up brilliantly through a small telescope and is not far away as things go in the two billion light years that can be seen from Mt. Palomar: what you will see happened only 7,000 years ago.

Application to mail at second-class postage rates pending at Washington, D. C.

## American Association for the Advancement of Science

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